

[0116] FIG. 13 is a plan view schematically showing another configuration of the sensor SE of the embodiment. The example shown in FIG. 13 differs from the example shown in FIG. 5 with respect to a feature that each of the divisional electrodes C of the common electrode CE extends in the first direction X while the detection electrodes Rx substantially extend in the second direction Y.

[0117] In other words, the common electrode CE comprises the divisional electrodes C which are arranged in the second direction Y to be spaced apart from each other and which extend approximately straightforward in the first direction X, in the display area DA. The detection electrodes Rx are arranged in the first direction X to be spaced apart from each other and extend approximately straightforward in the second direction Y, in the display area DA. The common electrode CE and the detection electrodes Rx are opposed so as to sandwich various dielectrics as explained above. Each of the divisional electrodes C is electrically connected to the common electrode drive circuit CD. The lead lines L are disposed in the non-display area NDA to be electrically connected with the detection electrodes Rx in a one-to-one correspondence. The lead lines L are disposed on the second substrate SUB2, similarly to, for example, the detection electrodes Rx. Each of the lead lines L is electrically connected to the detection electrode RC via the flexible printed circuit FPC2. In the example illustrated, the lead lines L are disposed in the non-display area NDA along a side edge EC of the second substrate SUB2 on which the flexible printed circuit FPC2 is mounted.

[0118] Each detection electrode Rx comprises a body portion RR located in the display area DA, and the broadened portion RSL connected to the body portion RR and located in the non-display area NDA alone, similarly to the example shown in FIG. 5, though not described here. In the example illustrated, the broadened portions RSL are arranged in the non-display area NDA extending along side edge EC. The broadened portions RSL of the respective detection electrodes Rx are arranged in the first direction X so as to form the surrounding portion SR between the common electrode CE and the lead lines L. As explained above, the adjacent broadened portions RSL are configured to suppress leakage of the electric field though illustrated simply. In other words, any one of the configurations explained with reference to FIG. 6, FIG. 9 and FIG. 10 can be applied to the detection electrodes Rx, and any one of the configurations explained with reference to FIG. 11 and FIG. 12 can be applied to the gap between the detection electrodes Rx and the lead lines L.

[0119] In this modified example, too, the same advantages as those of the above-explained examples can be obtained. In addition, the length of the lead lines L making connection between the detection electrodes Rx and the flexible printed circuit FPC2 can be reduced, and the noise of the lead lines L can be further reduced, as compared with the example shown in FIG. 5 or the like.

[0120] The sensor-equipped display device in which the common electrode CE built in the display panel PNL functions as the sensor driving electrode, and the detection electrodes Rx opposed to the sensor driving electrode and the lead lines L electrically connected to the detection electrodes Rx are disposed, has been explained in the embodiment, but the embodiment can also be applied to the sensor devices which can be combined by being applied on the display panel including no sensor elements such as the

sensor driving electrode and the detection electrodes. More specifically, the sensor device comprises a sensor panel including a sensor driving electrode, detection electrodes and lead lines, and a driving module. The sensor driving electrode is disposed at a position opposed to the display area of the display device. The detection electrodes are opposed to the sensor driving electrode. The lead lines are disposed at positions opposed to the non-display area of the display device and electrically connected with the detection electrodes to allow the sensor output value to be output from the detection electrodes. The driving module supplies the sensor drive signal to the sensor driving electrode and allows the sensor drive signal from the sensor driving electrode to be detected as the detection signal by the detection electrodes to read variation of the detection signal. In the sensor device, each of the detection electrodes comprises the body portion and the broadened portion wider than the body portion. The body portion is opposed to the sensor driving electrode. The broadened portion is opposed to the non-display area without being opposed to the display area, and is not opposed to the sensor driving electrode either. In this sensor device, too, the same advantages as those of the above-explained embodiments can be obtained.

[0121] As described above, the sensor-equipped display device and the sensor device capable of suppressing the sensor error detection can be provided according to the embodiment.

[0122] While certain embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions. Indeed, the novel embodiments described herein may be embodied in a variety of other forms; furthermore, various omissions, substitutions and changes in the form of the embodiments described herein may be made without departing from the spirit of the inventions. The accompanying claims and their equivalents are intended to cover such forms or modifications as would fall within the scope and spirit of the inventions.

What is claimed is:

1. A sensor-equipped display device, comprising:

a display panel which includes a sensor driving electrode disposed in a display area for displaying an image, detection electrodes each including a body portion opposed to the sensor driving electrode in the display area and a broadened portion connected to the body portion and formed to be wider than the body portion, and a lead line disposed in a non-display area outside the display area and electrically connected to the broadened portion; and

a driving module which supplies a sensor drive signal to the sensor driving electrode, allows the sensor drive signal from the sensor driving electrode to be detected as a detection signal by each of the detection electrodes, and reads variation of the detection signal via the lead line,

the broadened portion being disposed in the non-display area without being overlaid on the display area in planar view.

2. The sensor-equipped display device of claim 1, wherein the detection electrode comprises a metallic first detection line disposed on the broadened portion, and a metallic second detection line longer than the first detection line and extending over the broadened portion and the body portion.